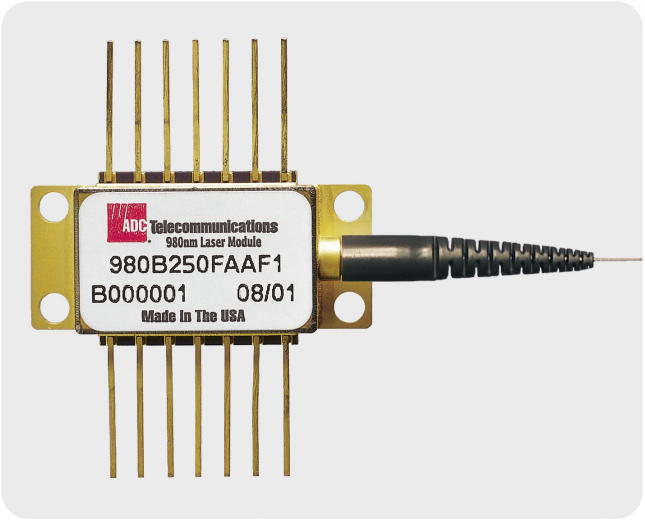
980 nm Laser Module

Fiber Bragg Grating Stabilized



Features:

- Fiber Bragg Grating wavelength stabilization
- Unique patent-pending Epitaxial Mirror On Facet (EMOF) technology eliminates Catastrophic Optical Mirror Damage (COMD) at the facet
- Vertically integrated laser diode and module manufacturing facility ensures reproducible and consistent laser process
- Molecular Beam Epitaxy (MBE) grown laser structure optimizes spectral performance
- High-power operation
- Robust optical train
- Fully Bellcore GR-468-CORE and GR-1312-CORE compliant
- High-power 14-lead "butterfly" laser module designed to exceed the reliability demands of EDFA applications in telecommunications

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Operating Specifications

LASER MODULE	
Threshold Current:	15 mA typical, 25 mA maximum
Forward Voltage at ($L_{(Kink)}$):	1.8 V typical, 2.5 V maximum
Kink Current	
$L_{(Kink)}$ = 110 mW:	185 mA typical, 225 mA maximum
$L_{(Kink)}$ = 120 mW:	200 mA typical, 245 mA maximum
$L_{(Kink)}$ = 130 mW:	215 mA typical, 260 mA maximum
$L_{(Kink)}$ = 140 mW:	230 mA typical, 280 mA maximum
$L_{(Kink)}$ = 150 mW:	250 mA typical, 300 mA maximum
$L_{(Kink)}$ = 160 mW:	265 mA typical, 320 mA maximum
$L_{(Kink)}$ = 170 mW:	280 mA typical, 335 mA maximum
$L_{(Kink)}$ = 180 mW:	295 mA typical, 355 mA maximum
$L_{(Kink)}$ = 190 mW:	310 mA typical, 375 mA maximum
$L_{(Kink)}$ = 200 mW:	325 mA typical, 390 mA maximum
$L_{(Kink)}$ = 210 mW:	340 mA typical, 410 mA maximum
$L_{(Kink)}$ = 220 mW:	350 mA typical, 430 mA maximum
$L_{(Kink)}$ = 230 mW:	365 mA typical, 450 mA maximum
$L_{(Kink)}$ = 240 mW:	380 mA typical, 465 mA maximum
$L_{(Kink)}$ = 250 mW:	400 mA typical, 485 mA maximum
Center Wavelength (Peak at $L_{(Kink)}$):	λ ±1 nm
Laser Diode Operating Temperature:	20°C to 30°C
Total Power Consumption:	6 W
FWHM ($\Delta\lambda@L_{(Kink)}$)	0.5 nm maximum
MONITOR PHOTODIODE	
Photocurrent:	200 µA to 2500 µA
Dark Current:	100 nA maximum
Responsivity:	1 µA/mW to 25 µA/mW

Absolute Maximum Rating Specifications

ENVIRONMENTAL	
Storage Temperature:	-40°C to 85°C
Operating Temperature:	-20°C to 85°C
Lead Solder Temperature:	260°C
Laser Operating Temperature:	20°C to 30°C
Lead Solder Time:	10 Sec
LASER MODULE	
Reverse Voltage:	2 V
Reverse Current:	2.5 mA
MONITOR PHOTODIODE	
Current:	4 mA
Reverse Voltage:	150 V
FIBER TAIL ASSEMBLY	
Fiber Temperature:	-40°C to 85°C
Fiber Pull Force:	5 N
Bend Radius:	16 mm

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Absolute Maximum Rating Specifications (Continued)

THERMOELECTRIC COOLER

Current:	1.5 A
Voltage:	3.5 V
Power Consumption:	4.8 W

THERMISTOR

Current:	2 mA
Voltage:	5 V
Resistance ($L_{(Kink)}$) 25°C Submount:	9.5 kΩ to 10.2 kΩ, 10 kΩ typical

Notes:

1) Kink power is defined as the power corresponding to a current where the kink signal is greater than 0.20 mW. Kink signal is defined as the difference between the binomial coefficient weighted global and local average of a LI curve measured from the fiber.

2) All figures are based on start of life (S.O.L.) unless otherwise stated.

3) Temperature of submount 25°C, temperature of case 70°C unless otherwise stated.

4) $L_{(Kink)}$ – Kink free rated power of laser module.

Ordering Information

Catalog Number

LM _____ B _____ FAAF1CS103

Wavelength

975	λ = 975 nm
976	λ = 976 nm
978	λ = 978 nm
980	λ = 980 nm
985	λ = 985 nm

Kink Free Power

110	110 mW
120	120 mW
130	130 mW
140	140 mW
150	150 mW
160	160 mW
170	170 mW
180	180 mW
190	190 mW
200	200 mW
210	210 mW
220	220 mW
230	230 mW
240	240 mW
250	250 mW

Note:
Product comes standard with Flexcore 1060; 250 µm fiber with angled ferrule. Other wavelengths and a variety of connector options are available. Contact customer service for more information.

980 nm Laser Module
Safety and Operation

The laser light emitted from this laser module is invisible and may be harmful to the human eye. Avoid looking directly into the fiber when the device is in operation.

CAUTION: THE USE OF OPTICAL INSTRUMENTS WITH THIS PRODUCT WILL INCREASE EYE HAZARD

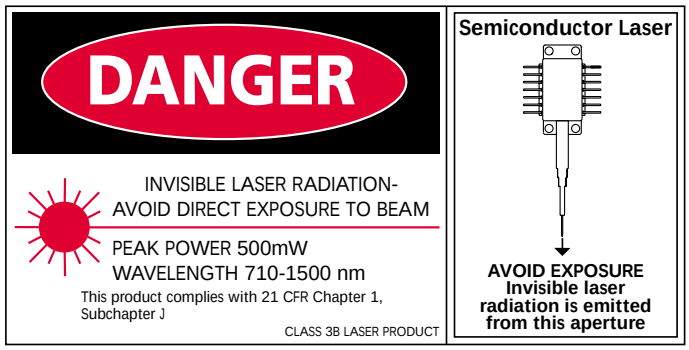
Operating the laser module outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the laser module must be operated in such a way that the maximum peak optical power cannot be exceeded. These laser modules may be damaged by excessive drive current or switching transients. When using power supplies, the laser module should be connected with the main power on and the output voltage at zero. The current should be slowly increased while monitoring the laser module output power and the drive current.

ESD

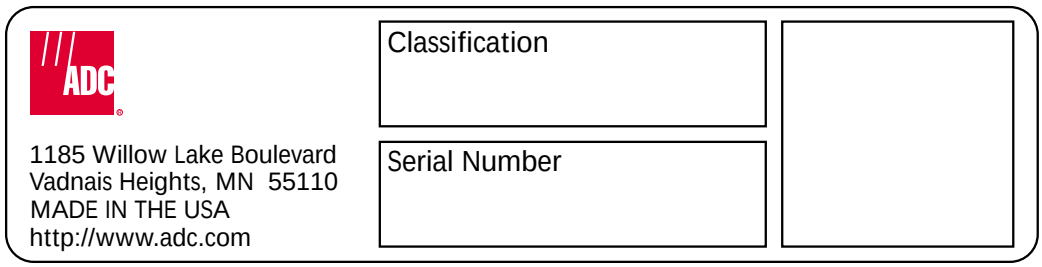
Electro-static discharge is the primary cause of unexpected laser diode failure. Take appropriate precautions to prevent ESD damage. Use wrist straps, grounded work surfaces, and rigorous anti-static techniques when handling laser modules.

21 CFR 1040.10 Compliance

Due to the small size of these modules, each label shown is attached to the individual shipping container. These are illustrated here to comply with 21 CFR 1040.10 as applicable under the Radiation Control Health and Safety Act of 1968.



Output Power and Laser Emission Indicator



Serial Number Identification Label

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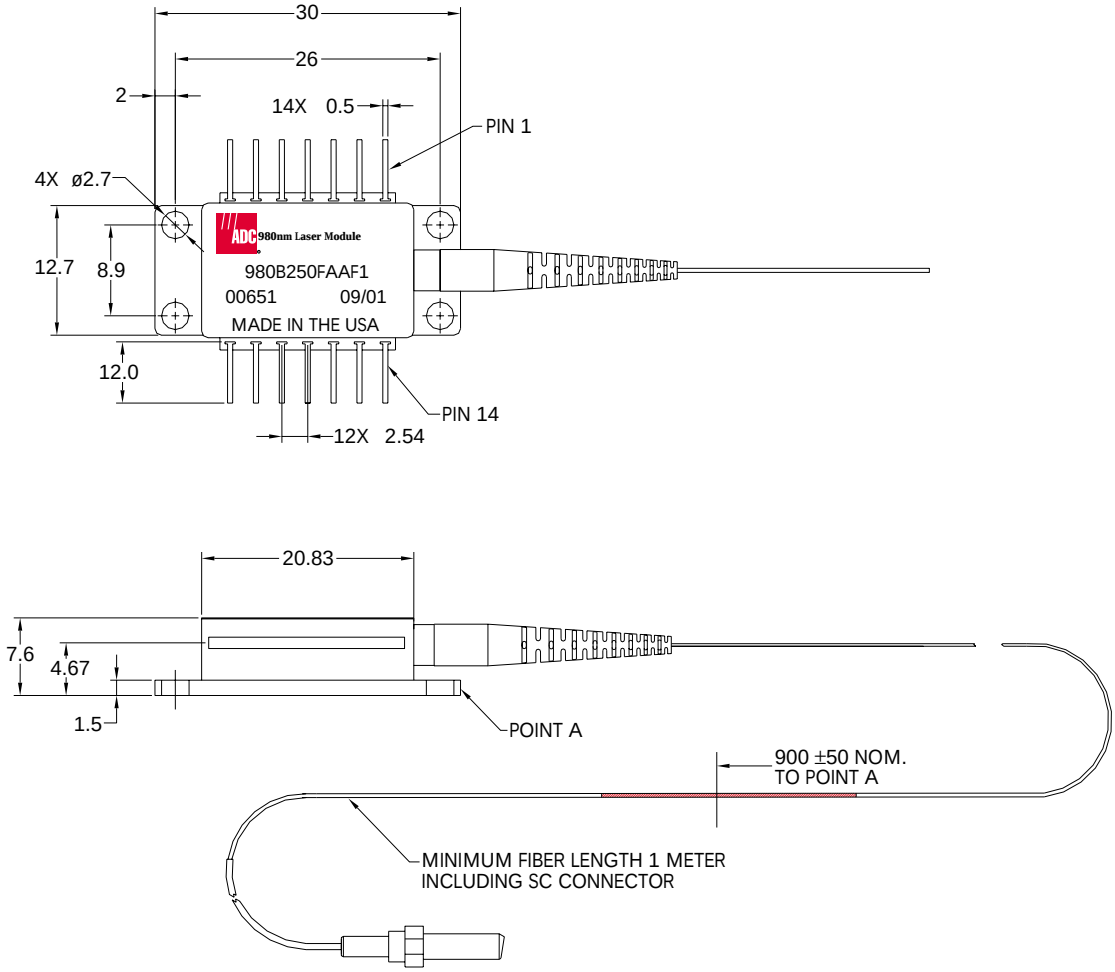

Fully Floating 980 nm Laser Module

Lead Number and Function

1) Thermoelectric Cooler (+)	8) NC
2) Thermistor	9) NC
3) Photo Diode Anode	10) Laser Anode, ESD Protection
4) Photo Diode Cathode	11) Laser Cathode, ESD Protection
5) Thermistor	12) NC
6) NC	13) Case Ground
7) NC	14) Thermoelectric Cooler (-)

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For a complete listing of ADC's global sales office locations, please refer to our web site.

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